

C L A I M S

1. Device for the dynamic measurement of an object's relative position, with respect to a mobile reference system, of the type consisting of at least one articulated arm that connects the reference system with the object whose coordinates and relative position are to be determined, **characterised in that** it comprises an articulated mechanical arm (16) with five degrees of freedom with five angular positioned sensors (31, 32, 33, 34 and 35), which allow the measurement of the three spatial coordinates X, Y, and Z of a point on the object to be measured and the two inclination angles (α (convergence) and γ (descent)) that define a plane of symmetry for the object with respect to a reference point.

2. Device according to claim 1, characterised in that the articulated arm (16) with five degrees of freedom comprises: a rotational joint (21) about an imaginary axis (1), connecting the reference point (10) and the articulated arm (16) via a working part (11); three rotational joints (22, 23 and 24) about 3 parallel, imaginary axes (2, 3 and 4) respectively, with the same direction that connect the working parts (11, 12, 13 and 14); and another rotational joint (25) about an imaginary axis (5) connecting the working parts (14) and (15) of the articulated arm.

3. Device according to the previous claims, characterised in that the sensors (31, 32, 33, 34 and 35), in each of the rotational joints are respective optical angular position sensors.

4. Device according to the previous claims, characterised in that said device is adapted to be installed on a vehicle (8), so that the reference point (10) consists of a fixing device (9) adapted for coupling to a fixed point on a vehicle and in that the working part (15) of the articulated arm (16) comprises an adaptor (17) connected via a rotational axle (6) that can be coupled to one of the vehicle's wheels (7) so that the dynamic measurement device determines the relative position of a wheel with respect to a fixed point on the vehicle and allows the study of the dynamic behaviour of the running gear in different driving conditions.

5. Procedure to determine the dynamic behaviour of a passenger vehicle based on the measurement of the relative position of its wheels, characterised in that it uses at least one device for the dynamic measurement of an object's relative position, each device coupled to at least one of the vehicle's respective wheels (8).